

## Case Report

# Inguinal swelling in a young lady: a case report

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### ABSTRACT

Ultrasonography, specifically high-resolution ultrasound is considered as the first-line imaging modality for evaluation of groin pathology. Ultrasonography can accurately distinguish a mass lesion either it is solid, cystic or complex (both solid and cystic). Here we report an inguinal swelling of a young lady evaluated by ultrasonography. A 29-year-old female patient came to Institute of Nuclear Medicine and Allied Sciences (INMAS), Cumilla for ultrasound of right inguinal region with the complaints of right inguinal swelling and occasional pain for 02 months. The swelling was firm, non-tender, didn't disappear on lying position. She had no associated fever, nausea, vomiting. High-resolution ultrasonography was performed to evaluate the swelling and an elongated, thin-walled cystic lesion was seen with internal echoes, extending from deep inguinal ring to labia majora. Doppler study shows no vascularity within the lesion. No peristalsis or change of shape or change in fluid amount seen on valsalva and augmentation. Sonological findings suggest right sided encysted hydrocele of the canal of Nuck. The cystic lesion was completely surgically removed, and histopathological examination verified an encysted hydrocele of the canal of Nuck with a smooth postoperative recovery. She was released in stable condition and stayed asymptomatic during follow-up with no signs of recurrence. Hydrocele of the canal of Nuck is rare in middle aged patient. High-resolution ultrasound plays vital role to diagnose confidently and to differentiate other pathological differentials in inguinal swelling specially from inguinal hernia and inguinal lymphadenopathy.

**Keywords:** High-resolution ultrasound, Hydrocele of the canal of Nuck, Inguinal swelling, Cystic lesion, Histopathological examination, Follow up

### INTRODUCTION

An inguinal hernia occurs when abdominal contents bulge through a weakness in the lower abdominal wall, categorized as indirect if it passes through the deep inguinal ring beside the inferior epigastric vessels, and direct if it protrudes through Hesselbach's triangle.<sup>1</sup> Inguinal hernias are categorized as indirect or direct depending on their association with the inferior epigastric vessels. Indirect hernias occur due to an open processus vaginalis, are more prevalent, and typically impact younger people. Direct hernias are generally acquired and result from a weakness in the transversalis fascia located in Hesselbach's triangle.<sup>2</sup>

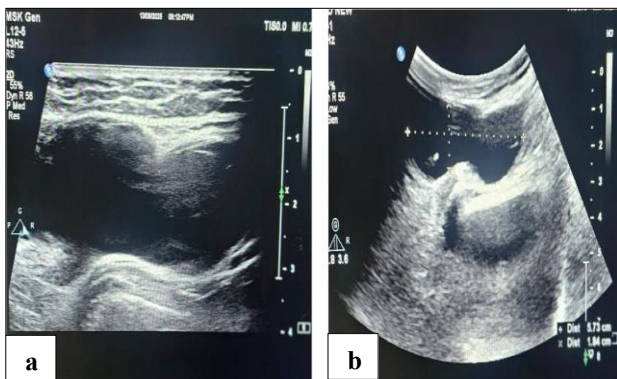
Individuals with inguinal hernias typically exhibit a bulge in the groin area, along with pain or discomfort that frequently intensifies during activities that elevate intra-abdominal pressure, like coughing, lifting, or straining.<sup>3</sup> Surgical repair is the preferred method, as tension-free mesh techniques lower recurrence rates compared to non-mesh options. Timely surgical treatment also alleviates symptoms, avoids complications, and guarantees improved long-term results.<sup>4</sup>

High-resolution ultrasound, known as ultrasonography, is regarded as the primary imaging technique for assessing groin conditions. It can precisely identify if a mass lesion is solid, cystic, or complex (a combination of solid and

cystic).<sup>5</sup> We present a case of inguinal swelling in a young woman assessed through ultrasonography, emphasizing the significance of imaging for the prompt diagnosis of this uncommon condition.

## CASE REPORT

A 29-year-old female patient came to Institute of Nuclear Medicine and Allied Sciences (INMAS), Cumilla for ultrasound of right inguinal region. There was a swelling in right inguinal region for two months. Initially the swelling was small, but after few days the swelling became persistently visible and enlarged. She had occasional dull aching pain in right groin, which relieved spontaneously without medication. On palpation swelling was firm, non-tender, didn't disappear on lying position. Patient had no associated fever, nausea, vomiting. High-resolution ultrasonography was performed to evaluate the swelling and an elongated thin-walled cystic lesion (57×18 mm) was seen with internal echoes, extending from deep inguinal ring to the labia majora. Doppler study shows no vascularity within the lesion. No peristalsis or change of shape or change in fluid amount seen on valsalva and augmentation. Sonological findings suggest right sided encysted hydrocele of the canal of Nuck (Figure 1).



**Figure 1 (a and b): High-resolution ultrasound showing elongated cystic lesion in right inguinal region.**

The patient was sent to the surgical department, where the cystic lesion was fully removed without any intraoperative issues. Histopathological analysis validated the diagnosis of encysted hydrocele of the canal of Nuck. The postoperative phase was straightforward, and the patient experienced a seamless recovery with satisfactory wound healing and no indications of infection or hematoma development. She was released in stable condition with suitable postoperative instructions and pain relief medications. She was monitored periodically in the outpatient clinic, where clinical examination showed total resolution of symptoms.

During follow-up visits, there was no sign of recurrence, groin pain, or lingering swelling, and the patient continued to be in good overall health.

## DISCUSSION

The canal of Nuck is an embryological anomaly in which processus vaginalis remains patent. Processus vaginalis, an evagination of parietal peritoneum descends through the inguinal canal in intrauterine life. Its upper portion fuses at or just before birth and lower portion within first year of life. Failure of these closure result in formation of a potential space, which is canal of Nuck.<sup>6-8</sup> Canal of Nuck pathology is a rare entity and relatively common in pediatric age group. Common clinical presentations of canal of Nuck pathology are swelling in groin or labia with or without pain. If patent processus vaginalis has peritoneal communication, it can contain fluid, omentum or bowel loops. If partial patency and no communication with peritoneal cavity it has fluid or loculated cyst in the form of hydrocele.<sup>9</sup>

Hydrocele originates from secretion of epithelial lining of processus vaginalis at a potential space. It is often elongated and narrow as it within the inguinal canal, but it can be rounded if more fluid accumulates. Can be simple or complex with internal septations and debris.<sup>9</sup>

On sonography hydrocele of the canal of Nuck shows well defined, thin walled, anechoic, single or multi cystic structure with or without septations. No vascularity on color Doppler and hernia of the canal of Nuck shows solid mostly hyperechoic component protruding through hernial orifice, shows response to valsalva.<sup>10,11</sup> In our case, sonological findings consistent with encysted hydrocele of the canal of Nuck.

## CONCLUSION

Hydrocele of the canal of Nuck is an uncommon condition in women of middle age. High-resolution ultrasonography is essential for making an accurate diagnosis and distinguishing it from other sources of inguinal swelling, especially inguinal hernia and inguinal lymphadenopathy. Timely and precise imaging assessment aids in preventing misdiagnosis, directs suitable surgical care, and decreases the likelihood of unnecessary procedures or complications.

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